Texas Pipeline Association

Thure Cannon
President

August 12, 2016

***Via Electronic Mail:***
*Daphne.McMurrer@tceq.texas.gov*
*Guy.Hoffman@tceq.texas.gov*

Daphne McMurrer and Guy Hoffman
TCEQ Air Quality Planning
MC-206
P.O. Box 13087
Austin, Texas 78711-3087

Re: Informal Comments on TCEQ's Area and Mobile Source Emission Reduction Credit Generation Proposal

Dear Ms. McMurrer and Mr. Hoffman:

Enclosed please find the informal comments of the Texas Pipeline Association ("TPA") regarding TCEQ's proposal to develop rule revisions for the generation of area and mobile source emission reduction credits. Please contact me if you have any question or wish to discuss our comments informally.

Yours truly,

Thure Cannon
President

Enclosure

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Comments of the Texas Pipeline Association on the
Generation and Use of Emission Credits from Area and Mobile Sources

Public Meetings Held:
Houston: July 20, 2016
Dallas: July 21, 2016
Austin: July 25, 2016

The Texas Pipeline Association ("TPA") is a trade organization composed of over 45 members who process, treat and transport natural gas and hazardous liquids through intrastate pipelines in Texas. TPA has signed and fully supports and endorses comments filed by a multi-industry coalition of trade organizations. TPA is filing these supplementary comments to address issues that are specific to the midstream oil and gas industry.

Like the industry trade associations, generally, TPA supports the development of new TCEQ rule amendments that would clarify the provisions that would apply to emission reduction credits ("ERCs") generated from area and mobile sources. But we would remind the TCEQ that it already has the authority in validly promulgated and EPA SIP-approved regulations to approve emission credits generated from area and mobile source right now, without any amendments necessary. Nonetheless, TPA supports the TCEQ's process to clarify the procedures that would be applicable to ERCs generated by these sources. Hopefully, that clarification will bring more certainty to the process, which would benefit the public, industry and the TCEQ.

**Length of rule development process is prejudicing industry interests and mandates the need for a transition rule to protect pending applications for emission reduction projects:**

From the perspective of industry, the TCEQ is taking too long to develop these new regulations. We were expecting TCEQ to proposed new regulations by the end of this summer (2016), rather than merely hosting a set of public meetings on the rule proposal. We learned in those public meetings that an informal comment period would follow, followed by the development of proposed rules that will not be available until next spring, which means that final rules will not likely be adopted until late in calendar year 2017. This lengthy rule development process prejudices the interests of industry in that it prolongs the uncertainty of the supply of ERCs in ozone nonattainment areas unnecessarily. ERCs are already in short supply and with EPA's finalization of designations under the 2015 ozone standard, the nonattainment areas will cover new geographic areas where ERCs will be needed to support economic growth. In these new areas, it may be the case that area and mobile sources are the primary source of ERC generation.

In addition, some members of the TPA are currently in a position where they are ready to initiate pollution reduction projects that would be eligible to generate an ERC, even under the more restrictive area and mobile source protocols that are being discussed. TCEQ protocols currently provide that an application for an ERC must be filed within two (2) years of the project that generated the ERC. But TCEQ is not currently processing applications for area or mobile source ERCs. Accordingly, there is a possibility that the TCEQ could consider emission reduction projects and associated applications for ERCs stale by the point in time that it acts to

finally propose and adopt its regulations that would support area and mobile source ERC generation. Therefore, TPA implores TCEQ to develop a transition rule that will protect the viability of these projects during this interim period. To do otherwise would have the unintended consequence of delaying emission reduction projects or loosing credits for the emission reduction projects until such time as TCEQ is "open for business" to review these applications, neither of which is good for business or for the TCEQ.

**TPA's other comments on TCEQ's proposal are as follows:**

- TPA members operate in the midstream segment of the natural gas industry. The types of sources that our members own and operate include storage tanks, natural gas compressor engines, dehydration units, liquids loading facilities, among others.

- TPA is unique in the sense that its member companies can be both a generator and a user of emission credits, depending on the location and size of the project that is being developed.

- Most of the types of permits and authorizations used to authorize our sources already require the quantification of emissions and extensive record keeping necessary to demonstrate compliance with applicable emission limits and other applicable requirements. Therefore, with that kind of certainty about baseline emissions from these sources, we strongly discourage the automatic application of a significant discount to an individual source's emissions from these types of facilities when applying for an emission credit.

- In addition, we would urge the TCEQ to maintain a 10-year look-back period, as currently provided in its rules, to determine historical adjusted emissions. TCEQ is currently proposing to reduce this period to 5 years – which would mean that the historical adjusted emissions would be based on the average annual emissions from any consecutive two-year period within the five years immediately preceding the emission reduction, rather than 10 years.

    - Five years is simply too short a period of time to establish a baseline for businesses that are irregular, cyclical or otherwise have variable emissions.

    - We believe ten years is the right baseline to use—not two out of five (a more restrictive limitation) as presented by TCEQ in the public meetings noted above. The midstream natural gas industry is extremely variable. It is dependent on unpredictable weather cycles – cold weather in the winter months and hot weather in the summer months – affect demand in those areas and may trigger a reverse flow in the pipelines in order to transport natural gas supplies to the affected areas. In addition, the midstream industry must respond to such variables as customer demands and variable pricing. None of this is under the control of the midstream natural gas industry and yet the midstream industry must be ready to adjust its delivery of supplies rapidly. Accordingly, a 5-year look-back period is simply not a long enough timeframe to account for these swings in the market and

to constitute a representative emissions baseline from our sources of emissions. The longer period of 10-years is not only consistent with other TCEQ programs, but it establishes a greater period of time for these unpredictable market and weather cycles to occur.

- For example, the TCEQ's 185 Fee rule, which is now suspended but would be applicable to the Houston-Galveston-Brazoria County nonattainment area, also relies upon an a 10-year look-back period to establish a baseline for sources subject to those rules. TCEQ looked at and evaluated the appropriate timeframe to establish a baseline under those regulations and determined that a 24-month consecutive period within a 10-year period was appropriate for non-EGU sources whose businesses are irregular, cyclical or otherwise have variable emissions. The same analysis that was relevant in the 185 Fee rulemaking is relevant here – a 10-year cycle is simply not long enough to account for the swings in the marketplace.

- While we recognize that NSR permitting is a different program than the Emissions Banking and Trading Program, the highest two years out of ten are used to determine the historical adjusted baseline emissions are used under NSR reform. Emission reductions from that baseline can be used for internal netting purposes or traded as offsets per federal law. The current Chapter 101 Emission Banking and Trading rules are consistent with NSR reform and allow credits to be banked for up to ten years.

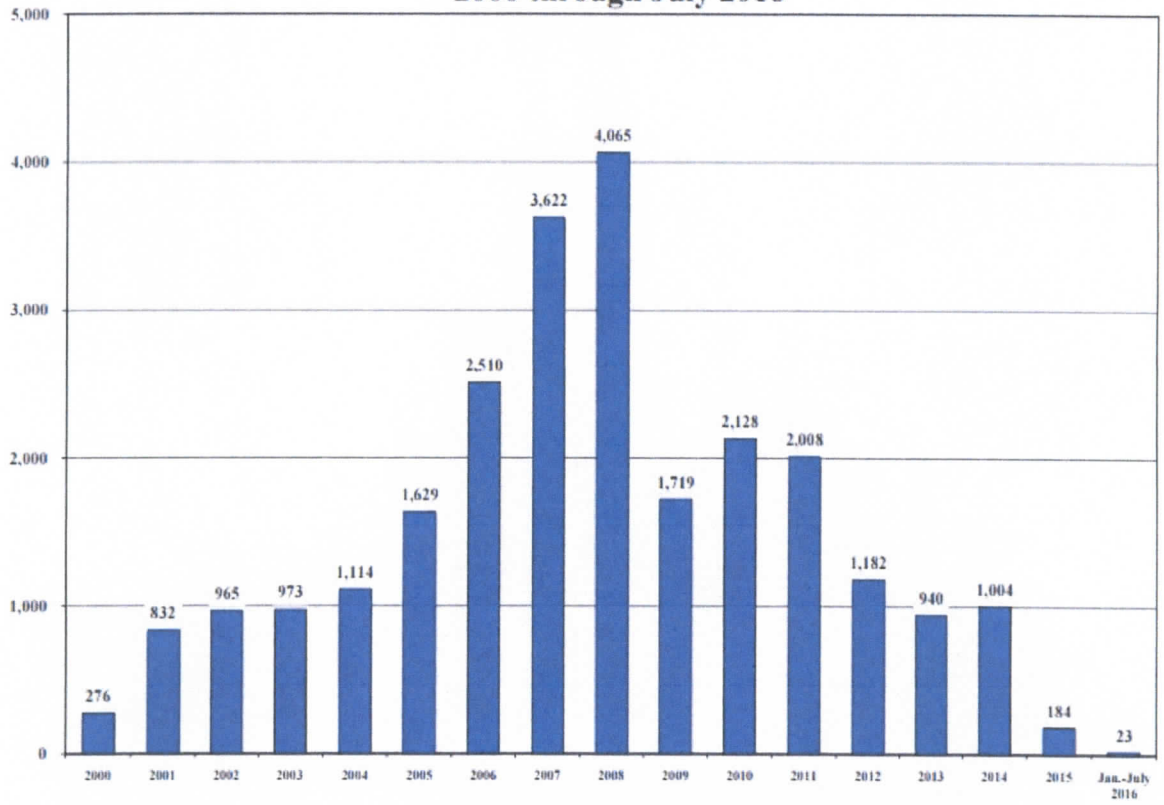
- TCEQ staff has expressed the view that a 10-year lookback period might be too long due to a "decline in the oil and gas production", which staff believes might result in unrealistically high baseline emissions levels. The facts are directly to the contrary.

    - <u>There is a difference between drilling activity (meaning new wells) and production activity.</u> It is possible that TCEQ staff is focusing on data showing decreased *drilling* activity (new wells) in recent years, for example in the Barnett Shale. But a slowdown in new drilling activity does not mean that *production* has declined. Hydraulic fracturing allows for substantial continued production from existing wells, meaning that a decline in the number of new wells drilled does not necessarily equate to a decrease in production. An October 2013 report issued by the United States Energy Information Administration ("USEIA"), entitled "Rethinking rig count as a predictor of natural gas production," made this very point, explaining that there is a disconnect between rig count and production activity: "In the past, the number of gas-oriented drilling rigs in a particular region has been a common metric for estimating the production of natural gas. However, technological advances have led the way to the widespread use of new oil and natural gas extraction techniques that have opened up a hydrocarbon resource base dramatically larger than previous estimates. Because of these new methods of extraction, generally

in wide use since 2007, *natural gas production has steadily risen, while the number of active rigs characterized as targeting natural gas has fallen dramatically.*" (*See* Attachment 1 (emphasis added)). Similarly, a March 2015 USEIA report stated that over the last several years, natural gas production has steadily increased, while the number of active rigs characterized as targeting natural gas has substantially decreased; USEIA explained that the disconnect between drilling activity and production activity was caused by various factors, including increases in drilling efficiency. (*See* Attachment 2; *see also* Attachment 3 ("America is producing more natural gas today with fewer than 400 active rigs than in 2008 with more than 1,600 rigs," American Enterprise Institute (April 2, 2013)). Simply put, there is a disconnect between drilling activity and production; drilling activity is no longer a reliable indicator of production levels.

- Railroad Commission data show that Barnett Shale production has increased despite decreases in drilling activity. The disconnect between drilling activity and production is clearly established by Railroad Commission statistics. As the following Railroad Commission charts indicate, drilling activity in the Barnett Shale has dropped over the past 10 years (2006-2015), while production of natural gas, condensate, and oil have remained steadily high:

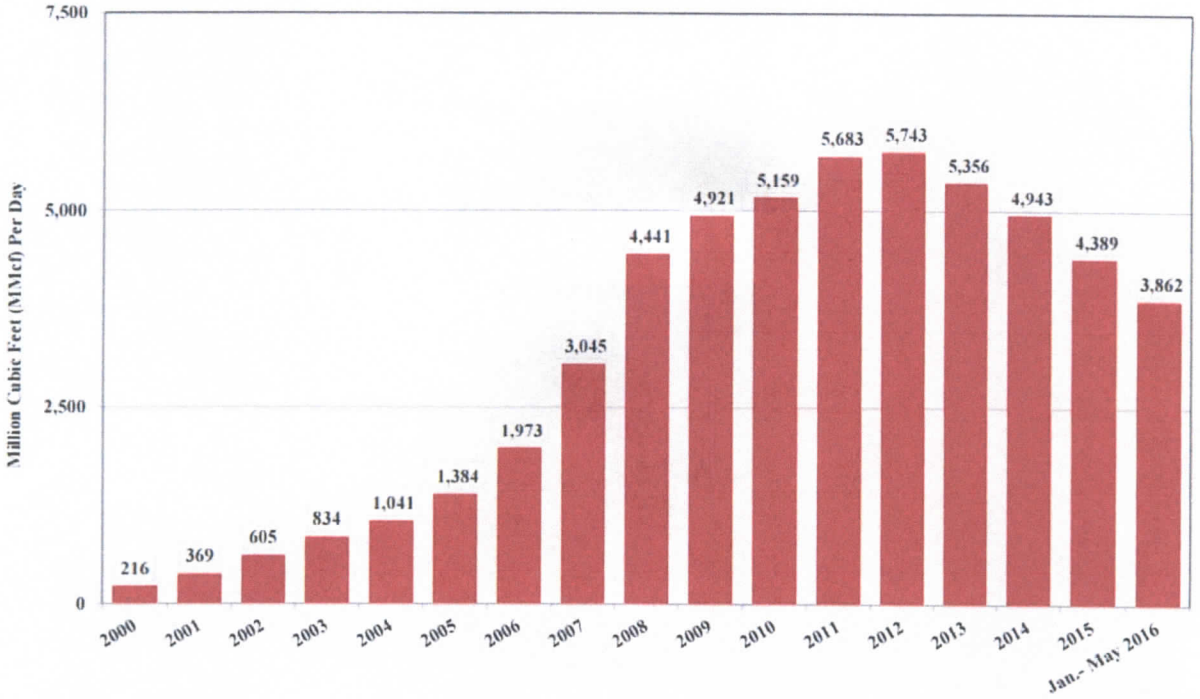
## Texas Newark, East (Barnett Shale)
## Drilling Permits Issued
## 2000 through July 2016




08/05/2016

Source: Texas Railroad Commission Drilling Permit Query (Includes New Drill & ReEnter Permits)

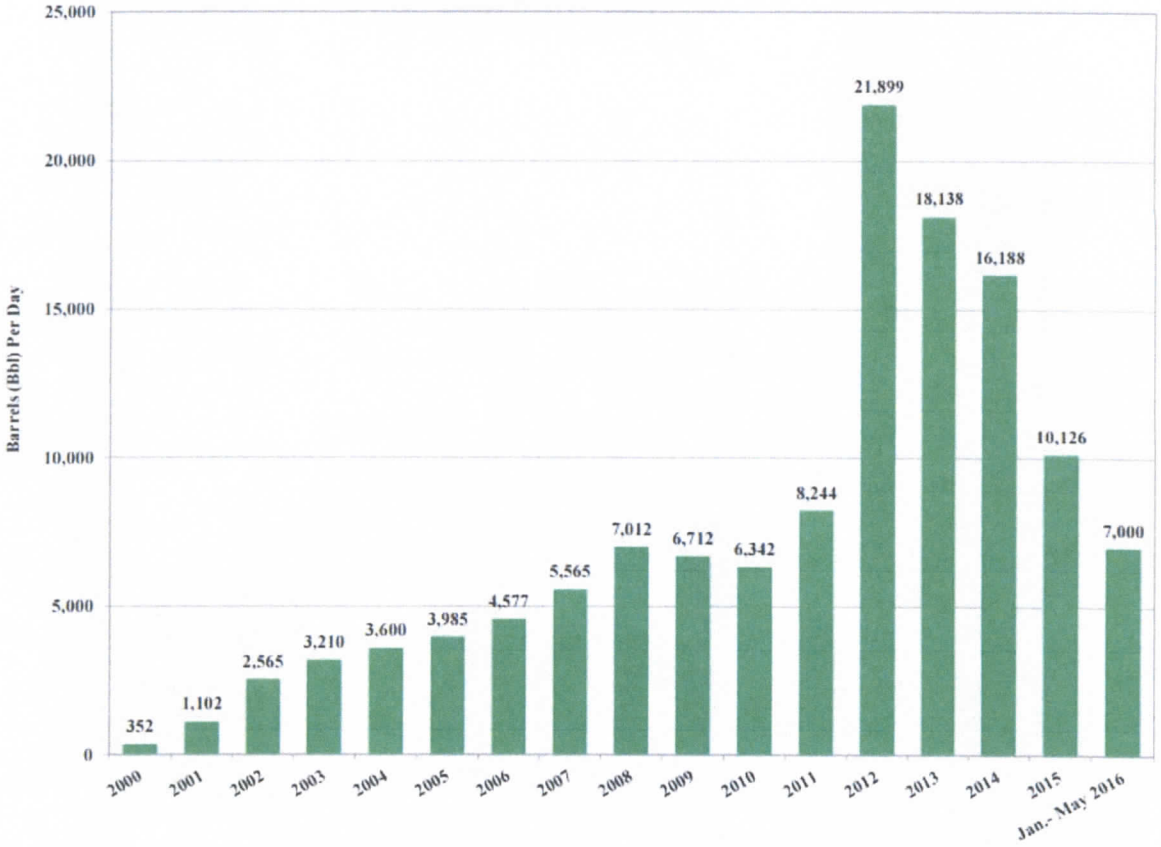
# Texas Barnett Shale
# Total Natural Gas Production
# 2000 through May 2016




07/21/2016

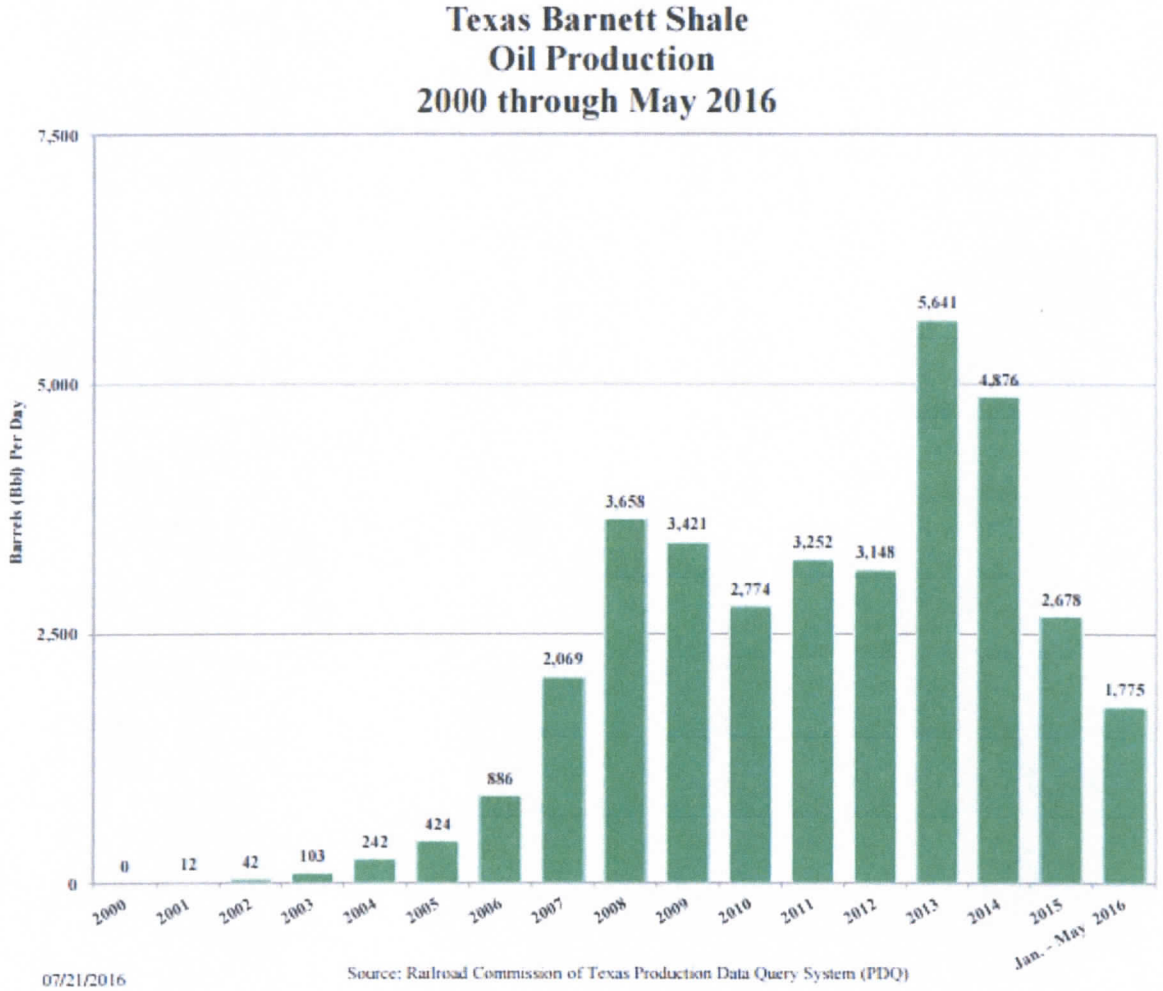
Source: Texas Railroad Commission Production Data Query System (PDQ)

# Texas Barnett Shale
# Condensate Production
# 2000 through May 2016




07/21/2016

Source: Railroad Commission of Texas Production Data Query System (PDQ)




- The number of natural gas and gas condensate wells in Texas has increased over the past 10 years. Not only is there a disconnect between drilling activity and production levels, but the fact is that the number of gas and gas condensate wells in Texas has actually *increased* statewide over the past 10 years. USEIA statistics show that, expressed as numbers of elements, Texas gas and condensate wells increased from 74,827 in 2005 to 98,279 in 2014. (*See* Attachment 4.)

- There is not a direct relationship between production activity and activity levels in the midstream industry. Midstream activity is driven by cyclical factors and demand / market fluctuations that are not directly connected to production levels. For example, underground natural gas storage provides pipelines with an inventory management tool, seasonal supply backup, and access to gas that is necessary in order to avoid imbalances between receipts and deliveries on a pipeline network – all of which means that a decreased level of production does not necessarily equate to a decreased level of midstream activity because the level of stored gas flowing through

midstream facilities often has no connection to upstream production levels. There is substantial underground storage capacity for natural gas; USEIA reports that Texas' natural gas underground storage capacity was over 834,000 million cubic feet (mmcf) in 2014, up from over 680,000 mmcf in 2005. (*See* Attachment 5.)

- There has been a substantial increase in Texas oil and natural gas production over the past 10 years. State and federal statistics show that oil and natural gas production activity in Texas statewide has increased significantly over the past 10 years. Railroad Commission data show that Texas oil and gas production has generally increased or remained relatively high across the board from 2005 to 2015:

**General Production Query Results**

**Query Path:** Search Criteria > Statewide

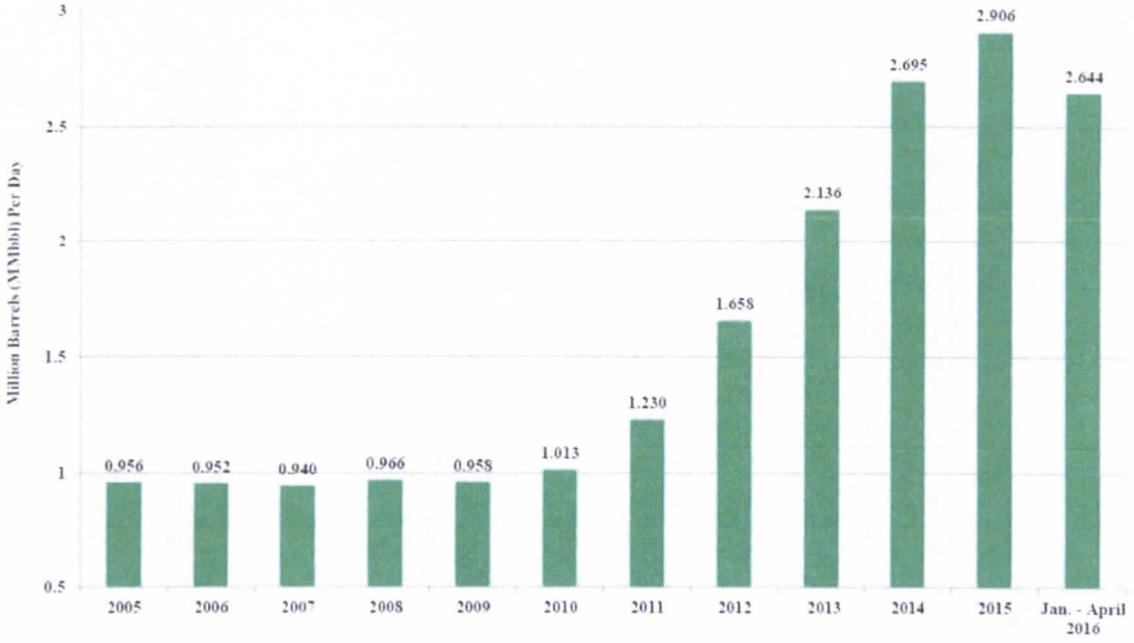
**Date Range:** Jan ▼ 2005 ▼ **to** Dec ▼ 2015 ▼ Submit

View by: Monthly Totals | **Annual Totals** | County | Field | Operator | Lease | District

**Statewide Statewide**
Annual Totals, Jan 2005 - Dec 2015

| Date | Oil (BBL) | Casinghead (MCF) | GW Gas (MCF) | Condensate (BBL) |
|---|---|---|---|---|
| 2005 | 348,968,576 | 658,299,116 | 5,377,869,782 | 43,634,824 |
| 2006 | 347,357,463 | 661,960,564 | 5,697,701,490 | 45,122,767 |
| 2007 | 342,686,611 | 655,780,112 | 6,265,758,379 | 48,557,634 |
| 2008 | 352,562,589 | 669,516,833 | 7,082,140,630 | 53,401,841 |
| 2009 | 348,737,236 | 696,982,820 | 6,927,739,736 | 50,637,723 |
| 2010 | 367,418,967 | 750,104,810 | 6,768,512,521 | 59,317,709 |
| 2011 | 443,039,296 | 884,784,882 | 7,015,921,714 | 85,888,222 |
| 2012 | 606,895,978 | 1,210,750,049 | 6,955,979,518 | 116,167,759 |
| 2013 | 779,576,004 | 1,594,270,532 | 6,726,681,431 | 142,489,505 |
| 2014 | 984,839,667 | 2,108,869,149 | 6,571,538,003 | 162,681,176 |
| 2015 | 1,064,631,845 | 2,454,300,388 | 6,232,627,657 | 161,340,185 |
| Total | 5,986,714,232 | 12,345,619,255 | 71,622,470,861 | 969,239,345 |

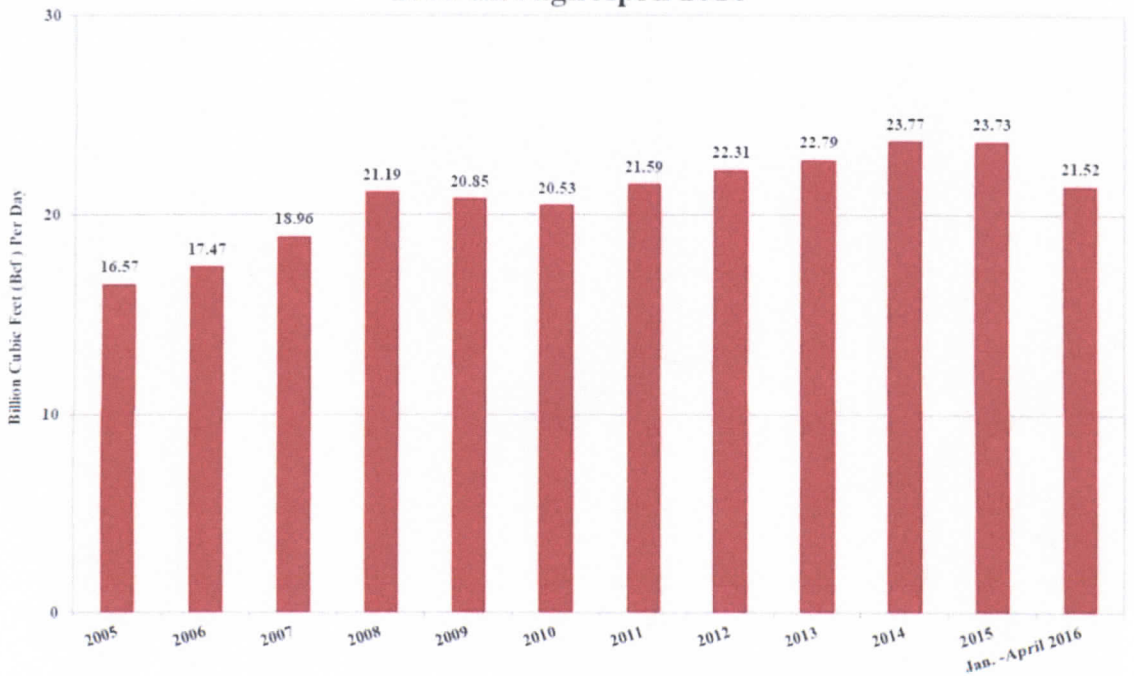
## Texas Oil Production
## 2005 through April 2016




06/21/2016

Source: Railroad Commission of Texas Production Data Query System (PDQ)

## Texas Total Natural Gas Production
## 2005 through April 2016




06/20/2016

Source: Railroad Commission of Texas Production Data Query System (PDQ)

Federal statistics also show a steady increase in Texas oil and gas activity over the past decade. USEIA data for Texas show that natural gas processed rose from 3,781,565 mmcf natural gas processed in 2005 to 6,834,017 mmcf in 2014; natural gas withdrawals rose from about 6,000,000 mmcf in 2005 to about 8,760,000 mmcf in 2015; natural gas shale production rose from 988 billion cubic feet (bcf) in 2007 to 4,156 bcf in 2014; natural gas plant liquids reserves-based production rose from 247 million barrels in 2005 to 558 million barrels in 2014; and field production of crude oil rose from approximately 32.5 million barrels per month in 2005 to over 100 million barrels per month in 2015. (*See* Attachments 6-10).

- The facts set forth above show that it would be appropriate to allow a 10-year lookback period for area sources. There is no reason for TCEQ staff to be concerned that there has been a decline in production over the past 10 years which would make use of a 10-year lookback period unreasonable. Relative production levels have gone up, not down, over the period from 2006-2015, both within the Barnett Shale and statewide.

- TCEQ uses a 10-year lookback period for ERC generation by major sources. While there are some differences between area / mobile sources and point sources in the context of an ERC generation program, there is no difference between these different types of sources with respect to how long the lookback period should be. Thus, there is no reason for TCEQ to in effect discriminate against area / mobile sources and impose a shorter lookback period on these sources. Any concerns that TCEQ has regarding SIP protection or supposed decreases in production activity would apply equally to point sources, yet TCEQ is not proposing to alter the 10-year period applicable to those sources. The 10-year period should apply to all sources that generate emission credits, regardless of their size.

- Types of projects that could generate credits in the midstream industry could include the replacement of a natural gas driven engine with an electric engine, or additional controls on a source of emissions such as a dehydration unit or storage tank. At times, a shutdown of a source may also occur that would serve as a basis for the generation of a credit. We are happy to discuss any types of these projects with you in detail.

- Because TCEQ's current rules give it the authority to approve emission credits generated by area and mobile sources, TCEQ should process any such applications without delay. If TCEQ does not process such an application, it should at a minimum provide assurances that such applications may be filed and that, once filed, they will not go stale. When TCEQ does begin to process such applications, under the upcoming revised rules, those previously filed applications should be processed in due course.

We appreciate the opportunity to submit these comments.

Attachment 1

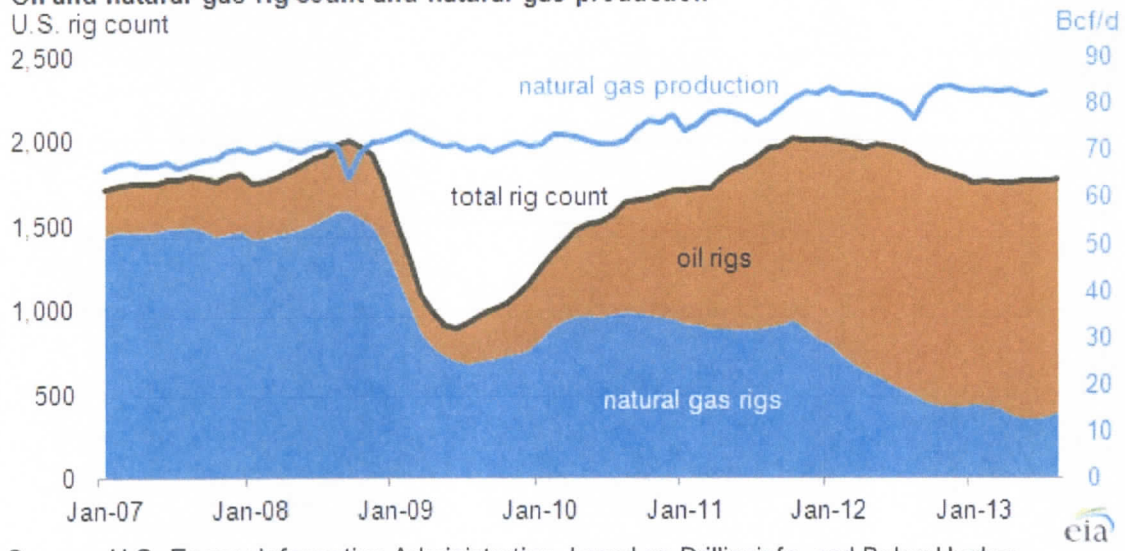
U.S. Energy Information Administration

# Today in Energy

October 28, 2013

## Rethinking rig count as a predictor of natural gas production

**Oil and natural gas rig count and natural gas production**

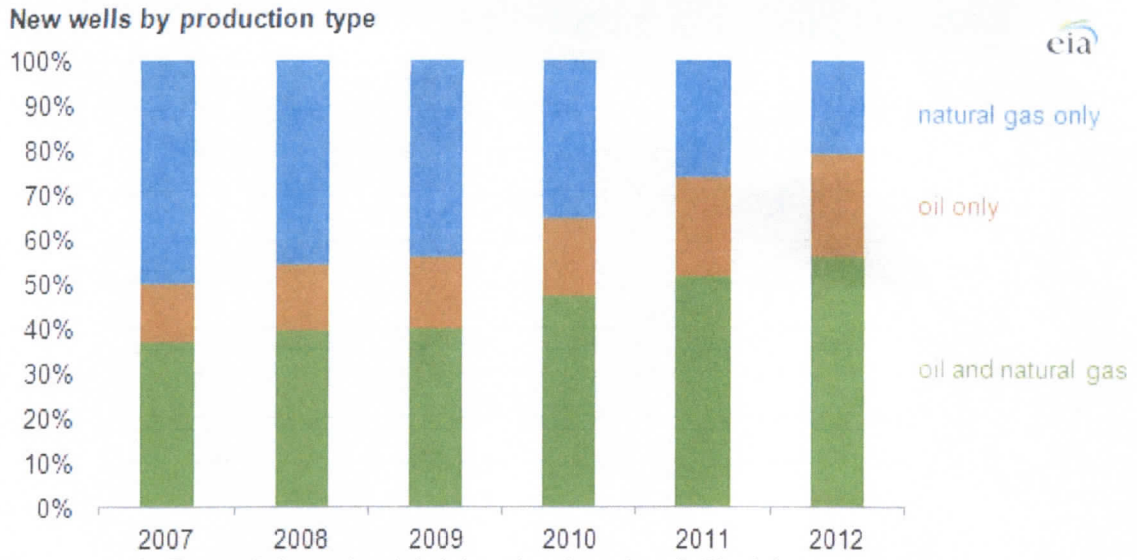



**Source:** U.S. Energy Information Administration, based on Drillinginfo, and Baker Hughes
**Note:** Natural gas production includes volumes that after being produced may be vented, flared, reinjected, separated, or otherwise processed; this is also known as produced natural gas or gross withdrawals.

Republished October 28, 2013, 3:45 p.m., text was modified to clarify content.

In the past, the number of gas-oriented drilling rigs in a particular region has been a common metric for estimating the production of natural gas. However, technological advances have led the way to the widespread use of new oil and natural gas extraction techniques that have opened up a hydrocarbon resource base dramatically larger than previous estimates. Because of these new methods of extraction, generally in wide use since 2007, natural gas production has steadily risen, while the number of active rigs characterized as targeting natural gas has fallen dramatically.

The number of wells drilled nationwide that have produced both oil and natural gas increased from 37% in 2007 to 56% in 2012 (see chart below). This increase helps explain why natural gas production can rise (as it has) even as the number of rigs characterized as drilling for natural gas has fallen.




**Source:** U.S. Energy Information Administration, based on Drillinginfo

Using historical data (starting from 2007, corresponding to large-scale adoption of horizontal drilling and multistage hydraulic fracturing by industry), EIA developed a process model to estimate production trends and volumes in six major shale plays, which is one part of EIA's monthly drilling productivity report (DPR).

The DPR combines rig count data with well production data to calculate variables such as:

- Drilling efficiency (the number of wells drilled per rig per month)
- Lag times between drilling and the start of production
- Production declines from existing wells
- Initial rates of oil and natural gas production per well
- Expected new production per drilling rig observed

The DPR also includes a forecast of production through the month following the report release.

To estimate production for the most recent months, DPR uses the total observable rig count, along with recent trends in the key relationships between drilling and production. Using the expected productivity from all drilling rigs to estimate the oil and gas production coming from all resultant wells improves upon simple rig count models. Specifically, it does not break drilling into categories based on drilling targets (oil or gas), well type (vertical, directional, horizontal), or operator. The most relevant information for the DPR comes from the total number of rigs drilling, where those rigs are drilling, and the average efficiency and productivity of those regions.

Tomorrow's Today in Energy article will focus on the importance of reporting oil and natural gas activity together in the DPR.

**Principal contributors:** Jozef Lieskovsky, Sam Gorgen

Attachment 2

U.S. Energy Information Administration

# Natural Gas

## Natural Gas Weekly Update

**for week ending March 11, 2015** | **Release Date:** March 12, 2015 | **Next Release:** March 19, 2015

## In the News:

**Despite decline in rigs, natural gas production forecast to increase**

The total U.S. rig count as of March 6 was 1192, 600 lower than year-ago levels, according to data from Baker Hughes. Nearly 87% of the decline was from rigs designated as targeting oil, and more than half of this year-over-year decline occurred in Texas, where rig levels over last year fell by 326. The decline in Texas was driven by rig count declines of 173 and 73 in the Permian and Eagle Ford basins, respectively. The remainder of the overall decline, 13%, came from lower natural gas rig levels. As of March 6, only 26% (268) of total rigs were designated as targeting natural gas, a decrease of 77 rigs compared with last year's natural gas rig levels.

Despite declining rig counts, EIA forecasts continued growth in natural gas production over the next two years. In the past, the number of gas-oriented drilling rigs in a particular region was a common metric for estimating the production of natural gas. However, over the last several years, natural gas production has steadily increased, while the number of active rigs characterized as targeting natural gas has fallen dramatically.

There are several reasons that have contributed to the breakdown of traditional methods that seek to estimate natural gas production based principally on rig counts. To start, with the development of shale resources, there is an increased integration of oil and gas production, and natural gas is often produced from rigs that are targeting oil. Additionally, there have been increases in drilling efficiency, or the number of wells drilled per rig each month.

There is also a backlog of wells that have been drilled but not yet completed, which acts as a cushion for well additions, offsetting the more immediate decreases in drilling and permitting activity. As of the end of January, at most major plays in the United States, the backlog ranged from three to seven months. However, when drilling activity remains at reduced levels long enough to outlast the cushioning effect of the well-completion backlog, the number of new wells brought online will begin to decrease, which can eventually reduce production rates. Additionally, production may decline should producers defer completions.

In December 2014, dry natural gas production hit a record high of 74.3 billion cubic feet per day (Bcf/d), according to EIA's Natural Gas Monthly. This production increase occurred despite declining prices and falling rig counts. For 2014 as a whole, natural gas production increased 6.1%, which was the strongest growth since 2011, despite a 13% decrease in average natural gas rig count levels in 2014 compared with 2013. In the first two month of 2015, preliminary natural gas production data indicate temporary declines, largely attributable to freeze-offs during a few cold weeks in January and February. However, based on increases in rig efficiency and recent data, EIA's March Short-Term Energy Outlook forecasts that 2015 natural gas production will average 73.9 Bcf/d, an increase of 5% over 2014 levels. EIA forecasts that for 2016, production will average 75.4 Bcf/d, a 2% year-over-year growth.

## Overview:

### (For the Week Ending Wednesday, March 11, 2015)

- With more seasonal temperatures, natural gas prices moved downward at most trading locations during the report week (Wednesday to Wednesday). The Henry Hub spot price fell 47¢ over the report week, from $3.26/million British thermal units (MMBtu) last Wednesday to $2.79/MMBtu yesterday.
- At the New York Mercantile Exchange (Nymex), the April contract started the week at $2.769/MMBtu last Wednesday, fluctuated slightly and settled up at $2.824/MMBtu yesterday.
- Working natural gas in storage decreased to 1,512 Bcf as of Friday, March 6, according to the U.S. Energy Information Administration (EIA) *Weekly Natural Gas Storage Report* (WNGSR). A net withdrawal from storage of 198 Bcf for the week

resulted in storage levels 46.9% above year-ago levels and 13.0% below the five-year average for this week.

- As of March 6, there were 1,192 total rigs operating in the United States. The natural gas rig count fell by 12 to 268, and the oil rig count fell by 64 to 922. Additionally, two miscellaneous rigs were in operation this week.
- The natural gas plant liquids composite price increased by 1¢ to $5.93/MMBtu for the week ending March 6. Mont Belvieu NGL spot prices were mixed this week. Natural gasoline decreased by 0.3%, propane rose 1.7%, butane rose by 0.9%, and isobutane increased by 1.5%. Ethane prices dropped 6.7%.

## Prices/Demand/Supply:

**Moderating temperatures mark the approach of spring, prices drop.** Natural gas prices at almost all trading locations fell Wednesday to Wednesday as temperatures climbed to normal or near-normal levels, after a chilly start to the week. At most locations, prices fell through Tuesday, before rebounding slightly in trading on Wednesday, offsetting some of the report-week losses. The Henry Hub spot price opened the report week at $3.26/MMBtu and lost 53¢ through Tuesday, before gaining 6¢ in trading on Wednesday to end the week at $2.79/MMBtu.

**Northeast posts overall price declines.** At the Algonquin Citygate, which serves Boston, prices started the week $13.98/MMBtu on Wednesday, fell to $3.07/MMBtu on Tuesday, and ended the week at $4.97/MMBtu. Expected higher power demand in New England on Thursday, as reported by the New England Independent System Operator, supported the $1.97/MMBtu increase in gas prices in trading yesterday. Similarly, with winter weather at the start of the report week, prices at the Transcontinental Zone 6 trading point for delivery into New York City began the week relatively high at $15.83/MMBtu, before closing at $2.75/MMBtu yesterday.

**With forecasts that called for warmer weather through the week, prices also fell significantly at locations in the Mid-Atlantic and Midwest.** For example, prices at Transcontinental Zone 5, with service into the Mid-Atlantic, fell $11.67, to end the week at $2.79/MMBtu. At the Chicago Citygate, the natural gas price dropped more than $2 from $4.98/MMBtu last Wednesday to $2.75/MMBtu yesterday.

**Marcellus-area prices remain low.** Prices at several trading locations in the Marcellus area were among the few that increased this week. Despite this, prices in the Marcellus remain the lowest in the country. At Tennessee's Zone 4 trading region, which represents Marcellus deliveries on Tennessee's pipeline system, prices began the week at $1.30/MMBtu, dropped 10¢ to $1.20/MMBtu on Friday, before ending the week up at $1.40/MMBtu. Prices on Transco's Leidy Line also ended the report week at $1.40/MMBtu, an increase of 2¢ Wednesday to Wednesday. Prices at Dominion South, which serves customers in portions of Pennsylvania, Ohio, Maryland, West Virginia, and Virginia, started the week relatively higher than other Marcellus locations. Unlike the other Marcellus locations, Dominion South had an overall decline for the report week, closing the week at $1.67/MMBtu.

**Nymex prices increase.** At the Nymex, the near-month April contract increased this week from $2.769/MMBtu last Wednesday to $2.824/MMBtu yesterday. Supporting this increase were expectations of a report of a larger-than-normal storage withdrawal. The 12-month strip (the average of the 12 contracts between April 2015 and March 2016) increased from $2.919/MMBtu last Wednesday to $2.952/MMBtu yesterday.

**Supply declines slightly.** Total natural gas supply declined 0.1% from last week. As temperatures moved closer to normal levels, imports of natural gas from Canada declined 5.2% from the previous week, with imports in all regions dropping. Sendout of LNG also declined from last week. The decline in imported gas was offset by a week-over-week 0.6% increase in dry gas production. Dry gas production for the report week is 8.7% greater than the same week last year.

**Consumption falls below supply in the second half of the report week.** Led by declines in the residential and commercial sectors, consumption continues to fall. Since March 8, supply has exceeded consumption, the first multiday period that this has occurred since late December 2014. Total domestic consumption fell 17.5% week over week, but was nearly 10% greater than the same week last year. Residential and commercial consumption fell 28.5% from last week, with consumption moving lower through the report week. Industrial consumption declined 5.3%. Overall consumption of gas for electric power generation (power burn) fell 3.9%, but there were some regional variations. In particular, power burn increased in the Midwest by 13.4%.

more price data

## Storage

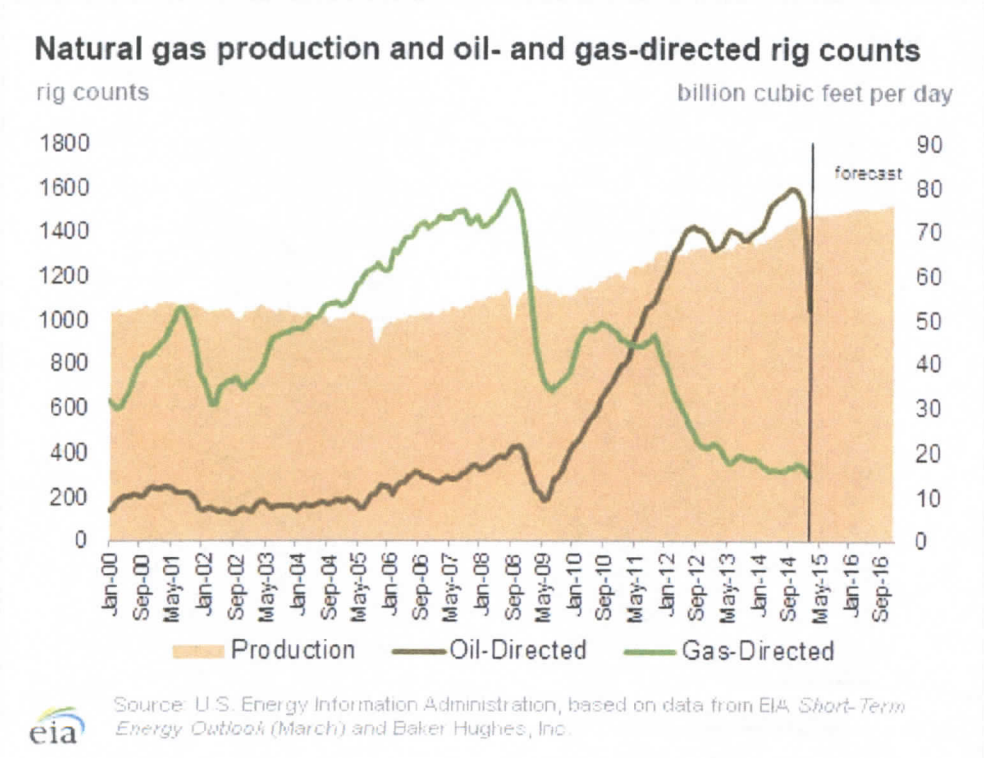
**Storage inventories fall further below five-year average.** After surpassing their five-year average three weeks ago, natural gas stocks remain below their five-year average following three weeks of larger-than-average withdrawals. With a net withdrawal of 198 Bcf for the

week, working gas inventories as of March 6 totaled 1,512 Bcf, 483 Bcf (46.9%) higher than last year at this time and 225 Bcf (13.0%) lower than the five-year (2010-14) average. The 198-Bcf net withdrawal reported for the week was higher than both the five-year average and last year's net withdrawals for the week ending March 6, which were 116 Bcf and 189 Bcf, respectively.

**Storage withdrawals are higher than market expectations.** Market expectations, on average, called for a pull of 191 Bcf. With the larger-than-expected withdrawal, when the EIA storage report was released at 10:30 a.m. on March 12, the price for the April natural gas futures contract decreased a few cents in the minutes following the release, to $2.83/MMBtu, in trading on the Nymex. In the next hour, prices decreased further, trading around $2.81/MMBtu.

**Salt facilities in the Producing region are now below their five-year average.** With a 78-Bcf storage withdrawal this week, the Producing region remains below its five-year average by 128 Bcf. Salt facilities in that region are now below their five-year average by 18 Bcf, compared with their 2-Bcf surplus from the week before. The deficit to their five-year average from nonsalt facilities in the Producing region also grew this week, and is now 110 Bcf (19.7%) below the five-year average. The West region is the only region above its five-year average. Storage levels for the East, West, and Producing regions were above their year-ago levels by 174 Bcf, 167 Bcf, and 142 Bcf, respectively.

**Temperatures during the storage report week are still significantly cooler than normal.** Temperatures in the Lower 48 states averaged 31.4° for the storage report week, 9.4° cooler than the 30-year normal temperature, but 1.3° warmer than the average temperature during the same week last year. There were 238 population-weighted heating degree days during the storage report week, 69 greater than the 5-year average and 8 fewer than during the same period last year.

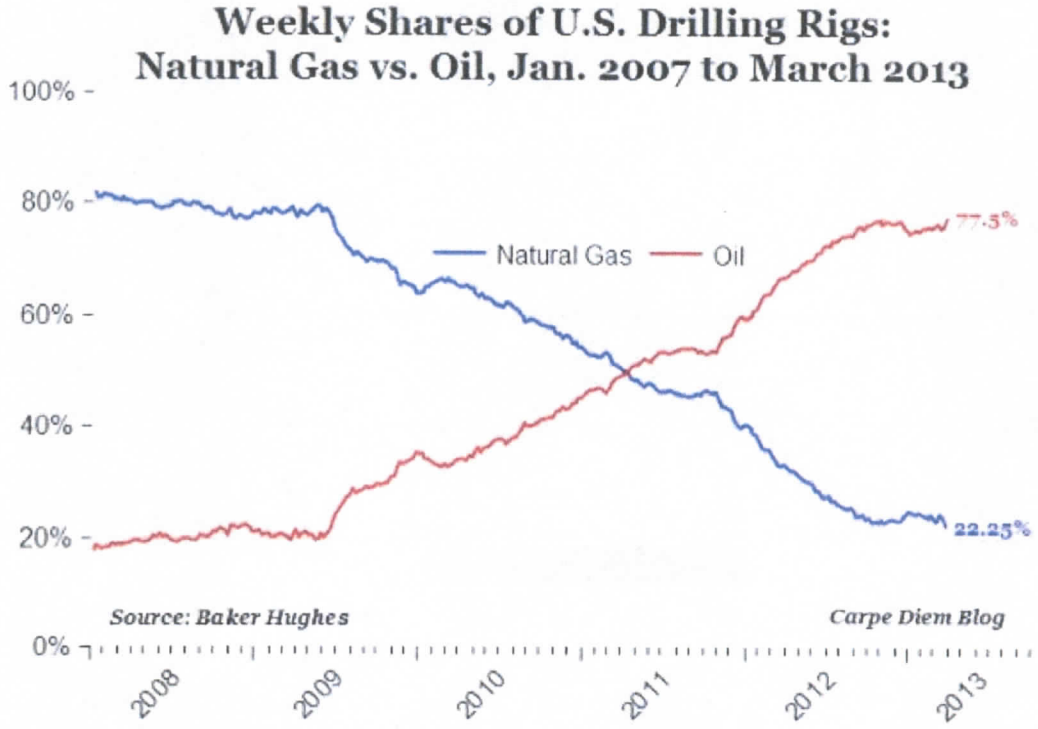


Attachment 3

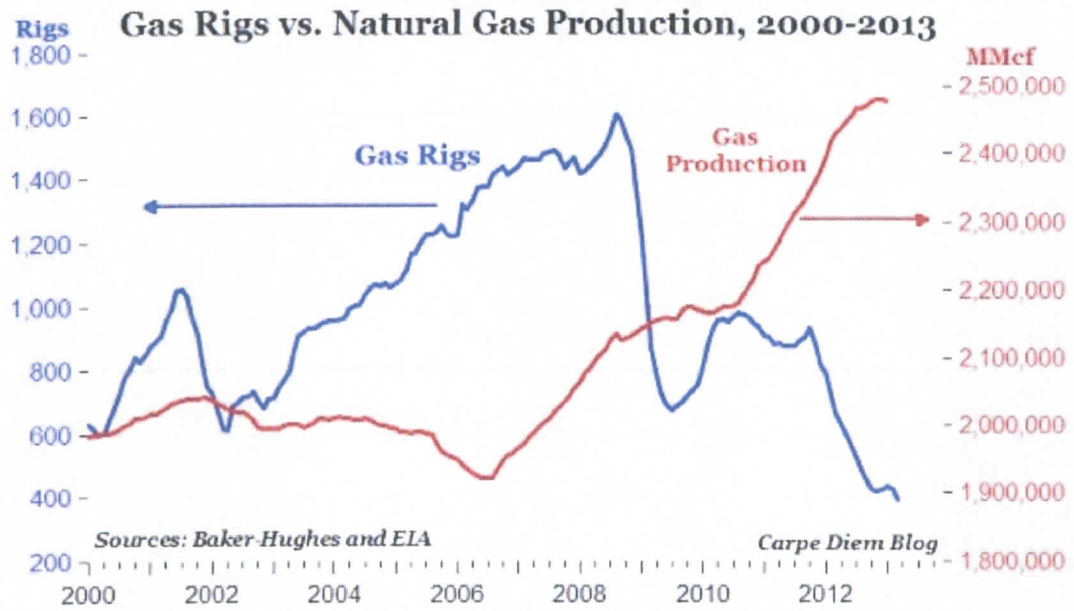
# America is producing more natural gas today with fewer than 400 active rigs than in 2008 with more than 1,600 rigs

Mark J. Perry

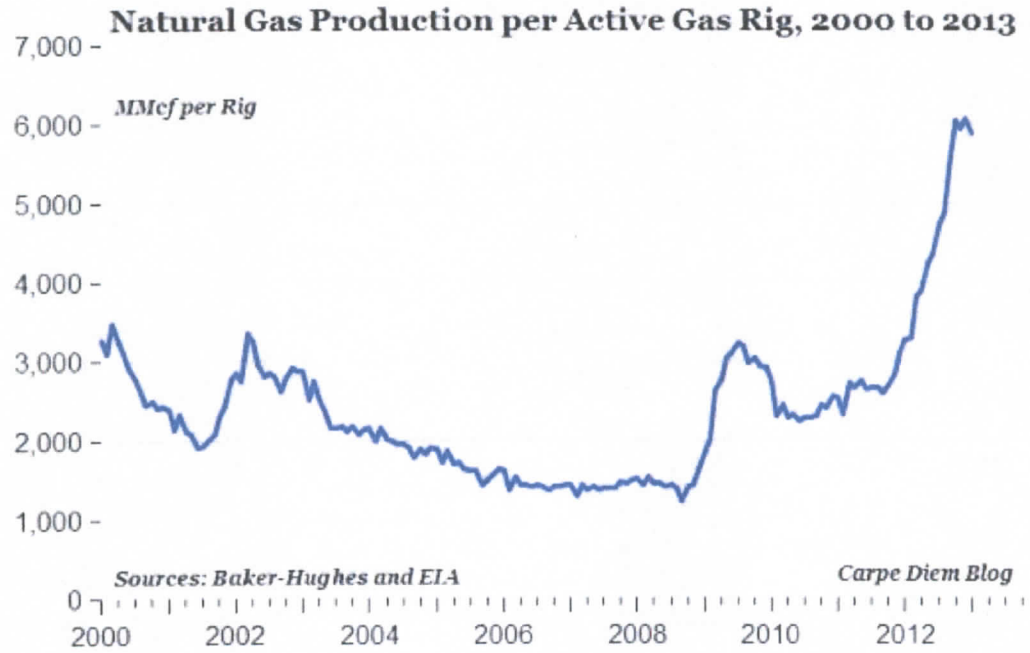
April 2, 2013 6:19 pm | AEIdeas




(https://www.aei.org/wp-content/uploads/2013/04/rigs.jpg)




(https://www.aei.org/wp-content/uploads/2013/04/gasrigs2.jpg)




(https://www.aei.org/wp-content/uploads/2013/04/gasrigs.jpg)Baker-Hughes, one of the world's largest oilfield services companies, releases data every Friday on rig counts for the oil and gas industry in North America, with detailed breakdowns by active rigs per US state, by the split between oil and gas rigs, by offshore vs. onshore rigs, and by rig drilling type (horizontal vs. vertical). Based on the rig count data released last Friday (http://phx.corporate-ir.net/phoenix.zhtml?c=79687&p=irol-reportsother), here are some highlights, including a few new noteworthy milestones:

1. There were a total of 1,748 active rigs last week, 389 drilling primarily for natural gas (22.25% of the total) and 1,354 drilling primarily for crude oil (77.5% of the total), see top chart above.

2. Over the last four years, there's been a complete reversal in the rig share between oil and gas as can be seen in the top chart. In 2008 and 2009 about 80% of the rigs were being used to drill for natural gas and 20% for crude oil. Now it's almost exactly the opposite - 77.5% of the rigs last week were drilling for oil and only 22.25% were drilling for natural gas.

3. The share of rigs drilling for gas at 22.25% last week was the lowest in the history of Baker-Hughes rig count data back to 1987, and the number of gas rigs (389) was the lowest since June 1995 (see blue line in middle chart above). Over the last year, the number of rigs drilling for natural gas has declined by 41% from 658 at the end of March last year. Last week's rig count of 389 was less than half the number of rigs two years ago of 880, and less than 25% of the peak of more than the 1,606 rigs that were drilling for natural gas in August 2008, less than five years ago.

The dramatic shift in rig share between oil and gas over the last four years, and the decline of the gas rig share to the lowest in history has come about for several reasons.

4. The recent advances in drilling technology unlocked previously inaccessible oceans of shale gas starting about 2008, and the abundance of domestic gas brought the price down by 85% between the summer of 2008 and the spring of 2012. During that early part of that period, the price of oil doubled in 2009 from $37 to $75 per barrel. And since October 2010, oil hasn't been below $80 per barrel, and has been trading above $90 per barrel for all of 2013. The dramatic decline in gas prices and the rise of oil prices in recent years explains much of the increase in the share of oil rigs going from only 20% of the total in 2009 to a 77.5% share last week, as energy companies have targeted the higher valued oil for drilling.

5. At the same time that the number of active gas rigs has declined by more than 75%, the amount of natural gas produced has continued to increase to record levels (see red line in middle chart). The bottom chart above shows the significant increase in the amount of natural gas produced per active rig over the last five years. In the first part of 2008, there was an average of about 1.4 billion cubic feet of natural gas being produced monthly for each rig, and now about 6 billion cubic feet of gas is being produced monthly per rig. In less than five years, there has been more than a four-fold increase in the amount of gas per rig.

In a previous CD post (https://www.aei.org/publication/us-gas-rigs-have-decreased-by-75-since-2008-and-yet-gas-production-has-increased-to-record-high-levels/), a recent Forbes article was quoted that explained why we're getting more gas from fewer rigs - because energy companies are "getting better over time at maximizing recoveries from each well" and those efficiency gains translate into the significant increases in gas output per active rig illustrated in the chart above. Increased gas output with fewer rigs also translates into lower production costs for domestic producers and helps to offset some of the loss of revenue from lower gas prices. The fact that we're able to continue to produce record amounts of natural gas with only 389 active rigs (which is 25% of the active rigs that were in use at the peak in 2008, and 1,217 fewer) is another part of the amazing energy story in America, which came about because of the breakthrough drilling technologies and the many "petropreneurs" who used those revolutionary techniques to rejuvenate US oil and gas production.

Attachment 4

U.S. Energy Information Administration

# NATURAL GAS



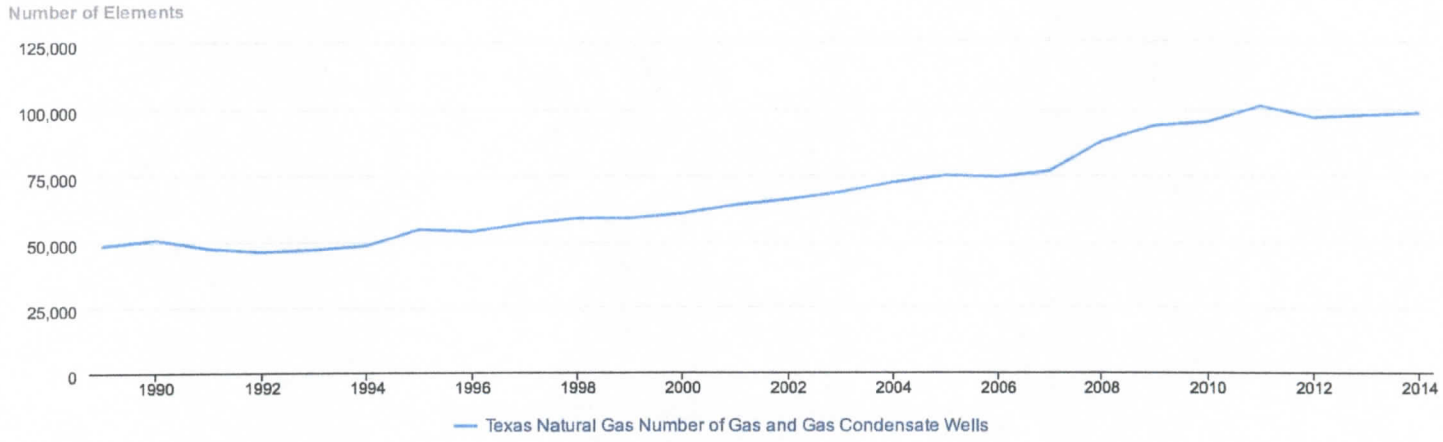
Referring Pages:
- Number of Producing Gas Wells
- Number of Producing Gas Wells (Summary)
- Texas Natural Gas Summary

View History: Annual

Download Data (XLS File)

## Texas Natural Gas Number of Gas and Gas Condensate Wells

DOWNLOAD




Source: U.S. Energy Information Administration

This series is available through the EIA open data API and can be downloaded to Excel or embedded as an interactive chart or map on your website.

**Texas Natural Gas Number of Gas and Gas Condensate Wells (Number of Elements)**

| Decade | Year-0 | Year-1 | Year-2 | Year-3 | Year-4 | Year-5 | Year-6 | Year-7 | Year-8 | Year-9 |
|---|---|---|---|---|---|---|---|---|---|---|
| **1980's** | | | | | | | | | | 48,609 |
| **1990's** | 50,867 | 47,615 | 46,298 | 47,101 | 48,654 | 54,635 | 53,816 | 56,747 | 58,736 | 58,712 |
| **2000's** | 60,577 | 63,704 | 65,779 | 68,572 | 72,237 | 74,827 | 74,265 | 76,436 | 87,556 | 93,507 |
| **2010's** | 95,014 | 100,966 | 96,617 | 97,618 | 98,279 | | | | | |

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Release Date: 7/29/2016
Next Release Date: 8/31/2016

Referring Pages:
- Number of Producing Gas Wells
- Number of Producing Gas Wells (Summary)
- Texas Natural Gas Summary

Attachment 5

U.S. Energy Information Administration

# NATURAL GAS

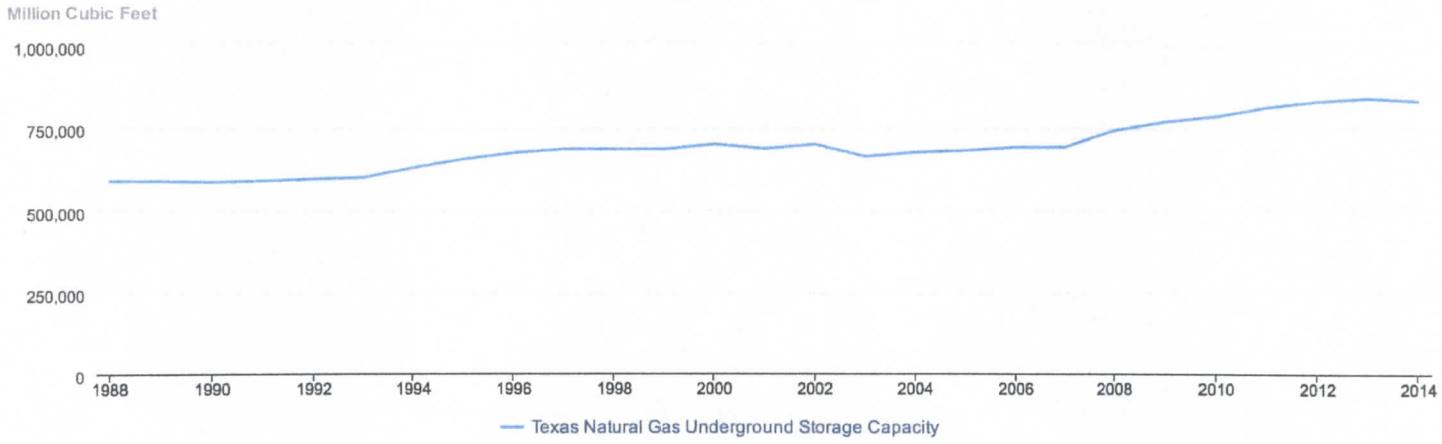


Referring Pages:
- Natural Gas Underground Storage Capacity (Summary)
- Texas Underground Natural Gas Storage Capacity
- Natural Gas Underground Storage Capacity (Summary)

View History: ○ Monthly ◉ Annual Download Data (XLS File)

## Texas Natural Gas Underground Storage Capacity

DOWNLOAD




Source: U.S. Energy Information Administration

This series is available through the EIA open data API and can be downloaded to Excel or embedded as an interactive chart or map on your website.

**Texas Natural Gas Underground Storage Capacity (Million Cubic Feet)**

| Decade | Year-0 | Year-1 | Year-2 | Year-3 | Year-4 | Year-5 | Year-6 | Year-7 | Year-8 | Year-9 |
|---|---|---|---|---|---|---|---|---|---|---|
| **1980's** | | | | | | | | | 590,248 | 589,780 |
| **1990's** | 586,502 | 589,018 | 595,229 | 598,782 | 627,589 | 653,420 | 672,533 | 683,891 | 684,226 | 684,226 |
| **2000's** | 699,323 | 686,000 | 699,471 | 662,593 | 674,196 | 680,096 | 690,061 | 690,678 | 740,477 | 766,768 |
| **2010's** | 783,579 | 812,394 | 831,190 | 842,072 | 834,124 | | | | | |

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Release Date: 7/29/2016
Next Release Date: 8/31/2016

Referring Pages:
- Natural Gas Underground Storage Capacity (Summary)
- Texas Underground Natural Gas Storage Capacity
- Natural Gas Underground Storage Capacity (Summary)

Attachment 6

U.S. Energy Information Administration

# NATURAL GAS



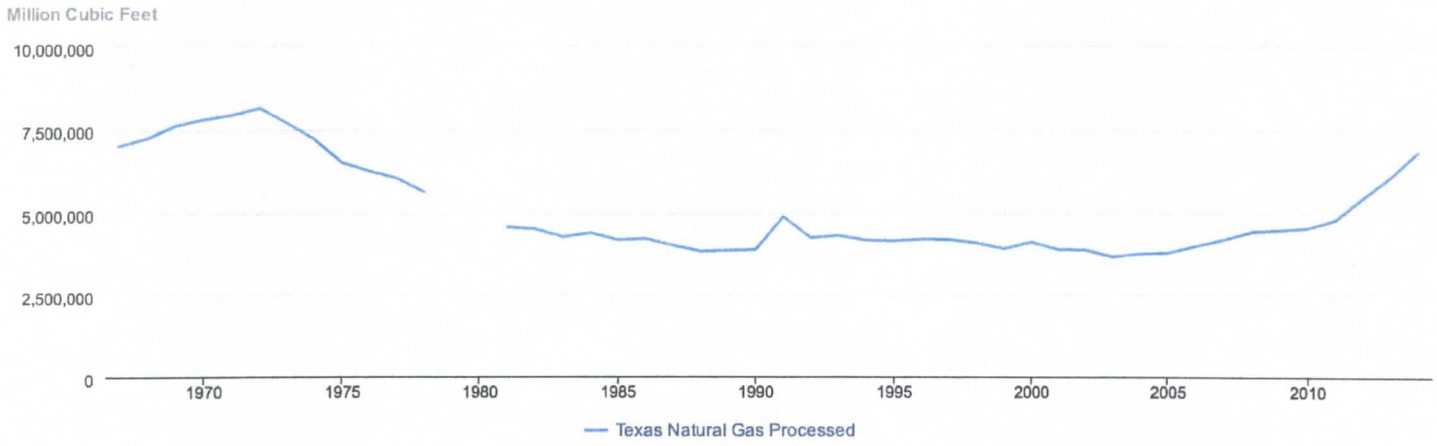
Referring Pages:
- Natural Gas Processed
- Texas Natural Gas Plant Processing
- Natural Gas Processed (Summary)

View History: Annual

Download Data (XLS File)

## Texas Natural Gas Processed

DOWNLOAD




Source: U.S. Energy Information Administration

This series is available through the EIA open data API and can be downloaded to Excel or embedded as an interactive chart or map on your website.

**Texas Natural Gas Processed (Million Cubic Feet)**

| Decade | Year-0 | Year-1 | Year-2 | Year-3 | Year-4 | Year-5 | Year-6 | Year-7 | Year-8 | Year-9 |
|---|---|---|---|---|---|---|---|---|---|---|
| **1960's** | | | | | | | | 7,018,237 | 7,239,621 | 7,613,234 |
| **1970's** | 7,808,476 | 7,938,550 | 8,139,408 | 7,683,830 | 7,194,453 | 6,509,132 | 6,253,159 | 6,030,131 | 5,621,419 | |
| **1980's** | | 4,563,931 | 4,507,771 | 4,258,852 | 4,377,799 | 4,164,382 | 4,199,501 | 3,997,226 | 3,813,727 | 3,842,395 |
| **1990's** | 3,860,388 | 4,874,718 | 4,231,145 | 4,301,504 | 4,160,551 | 4,132,491 | 4,180,062 | 4,171,967 | 4,073,739 | 3,903,351 |
| **2000's** | 4,096,535 | 3,876,399 | 3,861,114 | 3,658,929 | 3,748,670 | 3,781,565 | 3,990,862 | 4,187,358 | 4,431,574 | 4,478,331 |
| **2010's** | 4,534,403 | 4,785,388 | 5,452,574 | 6,085,121 | 6,834,017 | | | | | |

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Release Date: 7/29/2016
Next Release Date: 8/31/2016

Referring Pages:
- Natural Gas Processed
- Texas Natural Gas Plant Processing
- Natural Gas Processed (Summary)

Attachment 7

U.S. Energy Information Administration

# NATURAL GAS

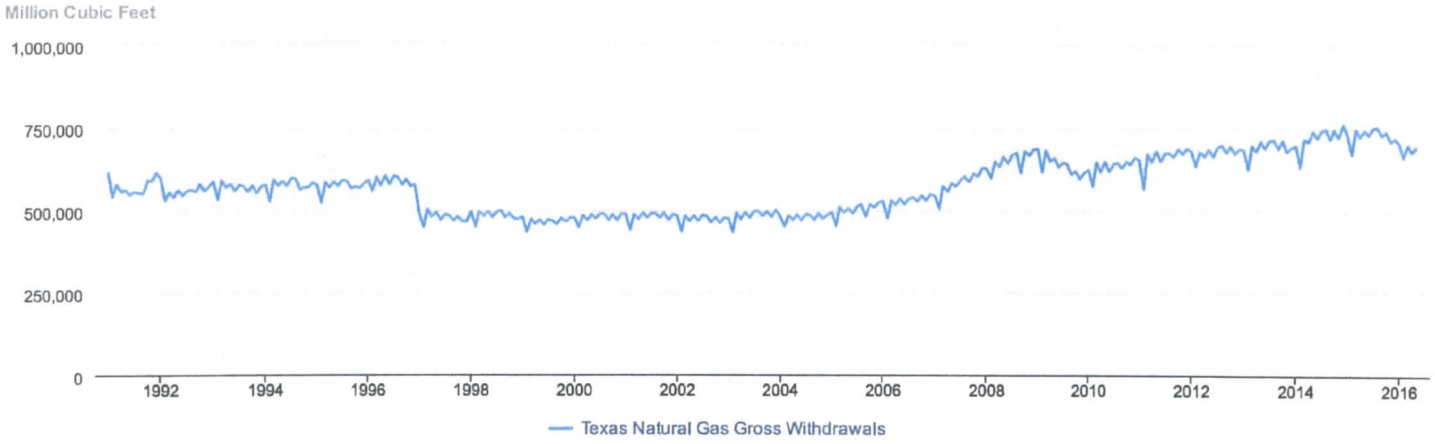


Referring Pages:
- Natural Gas Gross Withdrawals
- Texas Natural Gas Gross Withdrawals and Production
- Total Natural Gas Gross Withdrawals (Summary)

View History: ◉ Monthly ○ Annual Download Data (XLS File)

## Texas Natural Gas Gross Withdrawals

DOWNLOAD




Source: U.S. Energy Information Administration

Chart Tools

no analysis applied

This series is available through the EIA open data API and can be downloaded to Excel or embedded as an interactive chart or map on your website.

**Texas Natural Gas Gross Withdrawals (Million Cubic Feet)**

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1991** | 613,705 | 540,324 | 578,880 | 556,087 | 561,205 | 546,366 | 555,274 | 551,733 | 550,257 | 590,111 | 588,828 | 612,771 |
| **1992** | 598,880 | 528,013 | 553,839 | 538,891 | 560,714 | 543,985 | 556,864 | 562,265 | 555,604 | 579,459 | 557,729 | 571,770 |
| **1993** | 586,639 | 531,285 | 589,124 | 569,381 | 579,566 | 558,683 | 576,857 | 572,473 | 555,943 | 574,332 | 551,251 | 571,392 |
| **1994** | 577,140 | 526,756 | 593,034 | 573,725 | 589,005 | 573,948 | 597,196 | 595,742 | 563,076 | 568,696 | 569,968 | 583,419 |
| **1995** | 576,206 | 522,018 | 585,078 | 568,598 | 586,032 | 572,868 | 591,609 | 587,481 | 565,874 | 570,649 | 566,785 | 579,458 |
| **1996** | 591,346 | 557,318 | 600,145 | 574,777 | 603,819 | 578,686 | 602,948 | 598,966 | 576,586 | 594,202 | 572,473 | 576,936 |
| **1997** | 491,269 | 448,008 | 500,813 | 479,991 | 492,955 | 469,493 | 485,521 | 483,226 | 467,310 | 479,632 | 465,642 | 465,743 |
| **1998** | 493,460 | 449,886 | 495,307 | 481,373 | 494,995 | 478,404 | 494,102 | 498,769 | 476,492 | 489,829 | 473,462 | 472,814 |
| **1999** | 478,317 | 433,196 | 472,583 | 456,627 | 470,432 | 455,141 | 470,415 | 466,628 | 456,559 | 475,101 | 464,336 | 475,616 |
| **2000** | 477,074 | 446,976 | 483,371 | 469,231 | 485,579 | 474,129 | 487,588 | 486,617 | 470,499 | 485,947 | 468,245 | 487,664 |
| **2001** | 485,693 | 439,867 | 486,946 | 471,990 | 489,892 | 476,276 | 488,999 | 489,080 | 475,459 | 492,077 | 470,340 | 485,829 |
| **2002** | 482,448 | 435,128 | 482,526 | 467,486 | 482,110 | 467,132 | 483,971 | 481,689 | 463,075 | 478,697 | 460,797 | 475,945 |
| **2003** | 474,682 | 432,716 | 490,445 | 471,950 | 492,743 | 476,846 | 496,673 | 496,449 | 482,398 | 496,195 | 479,265 | 500,962 |
| **2004** | 482,037 | 450,702 | 483,107 | 470,009 | 485,909 | 469,302 | 487,375 | 485,646 | 471,271 | 489,866 | 473,970 | 484,725 |
| **2005** | 493,037 | 452,513 | 510,064 | 494,121 | 506,138 | 490,319 | 511,900 | 517,106 | 480,599 | 519,193 | 508,396 | 523,453 |
| **2006** | 527,796 | 474,652 | 531,371 | 516,597 | 536,217 | 517,015 | 535,468 | 538,636 | 527,240 | 544,147 | 529,244 | 548,050 |
| **2007** | 544,531 | 505,229 | 573,789 | 556,461 | 582,952 | 572,406 | 592,865 | 602,354 | 586,933 | 612,401 | 602,629 | 628,308 |
| **2008** | 627,482 | 597,775 | 648,430 | 631,977 | 663,122 | 643,388 | 667,954 | 675,080 | 613,057 | 680,384 | 666,544 | 685,464 |
| **2009** | 688,552 | 616,709 | 682,231 | 648,991 | 660,419 | 631,752 | 643,938 | 641,865 | 609,103 | 619,859 | 596,585 | 613,644 |
| **2010** | 624,461 | 573,500 | 646,044 | 616,784 | 647,486 | 617,943 | 641,064 | 644,854 | 629,495 | 650,192 | 639,682 | 662,192 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2011** | 654,508 | 566,060 | 671,291 | 649,803 | 681,055 | 650,315 | 674,134 | 675,452 | 662,813 | 688,418 | 671,278 | 689,562 |
| **2012** | 681,421 | 634,810 | 678,951 | 664,799 | 686,978 | 663,706 | 693,764 | 700,065 | 677,522 | 698,080 | 673,854 | 689,560 |
| **2013** | 685,282 | 627,497 | 699,110 | 681,475 | 710,595 | 690,189 | 713,513 | 714,752 | 690,301 | 713,550 | 680,447 | 692,762 |
| **2014** | 698,622 | 632,819 | 716,748 | 710,993 | 741,111 | 721,469 | 742,693 | 748,881 | 718,440 | 746,108 | 722,850 | 762,600 |
| **2015** | 731,831 | 673,092 | 746,691 | 726,293 | 743,980 | 731,065 | 752,341 | 754,086 | 731,049 | 739,603 | 713,058 | 720,290 |
| **2016** | 707,527 | 664,972 | 702,555 | 681,204 | 696,901 | | | | | | | |

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Release Date: 7/29/2016
Next Release Date: 8/31/2016

Referring Pages:

- Natural Gas Gross Withdrawals
- Texas Natural Gas Gross Withdrawals and Production
- Total Natural Gas Gross Withdrawals (Summary)

Attachment 8

U.S. Energy Information Administration

# NATURAL GAS



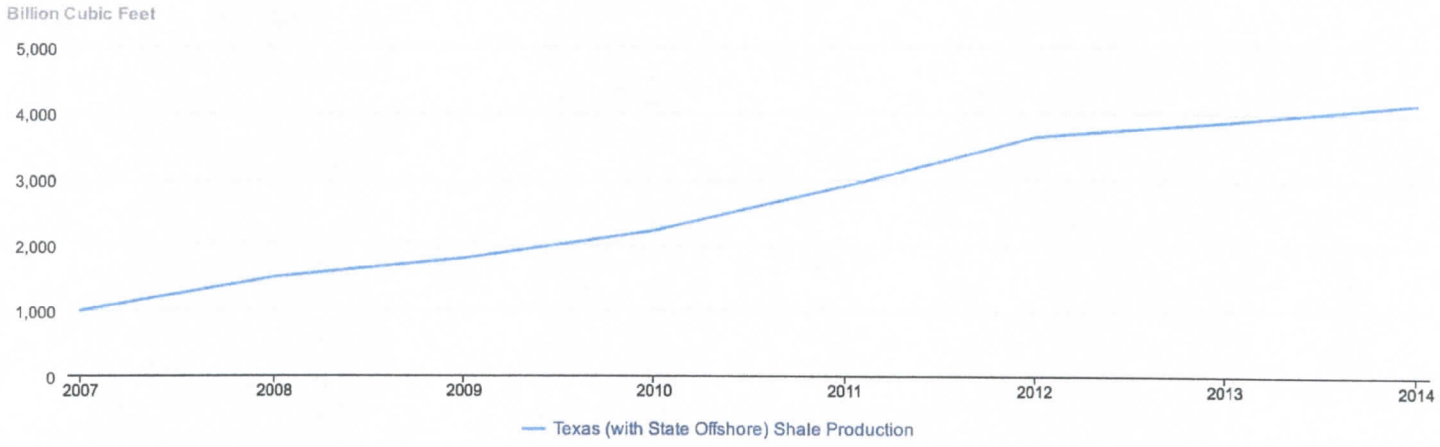
Referring Pages:
- Shale Natural Gas Estimated Production
- Texas Shale Gas Proved Reserves, Reserves Changes, and Production
- Shale Gas Production

View History: Annual

Download Data (XLS File)

## Texas (with State Offshore) Shale Production

DOWNLOAD




Source: U.S. Energy Information Administration

This series is available through the EIA open data API and can be downloaded to Excel or embedded as an interactive chart or map on your website.

**Texas (with State Offshore) Shale Production (Billion Cubic Feet)**

| Decade | Year-0 | Year-1 | Year-2 | Year-3 | Year-4 | Year-5 | Year-6 | Year-7 | Year-8 | Year-9 |
|---|---|---|---|---|---|---|---|---|---|---|
| **2000's** | | | | | | | | 988 | 1,503 | 1,789 |
| **2010's** | 2,218 | 2,900 | 3,649 | 3,876 | 4,156 | | | | | |

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Release Date: 11/19/2015
Next Release Date: 12/31/2016

Referring Pages:
- Shale Natural Gas Estimated Production
- Texas Shale Gas Proved Reserves, Reserves Changes, and Production
- Shale Gas Production

Attachment 9

U.S. Energy Information Administration

# NATURAL GAS



Referring Pages:
- Natural Gas Plant Liquids Production

View History: Annual

Download Data (XLS File)

## Texas (with State Offshore) Natural Gas Plant Liquids, Reserves Based Production

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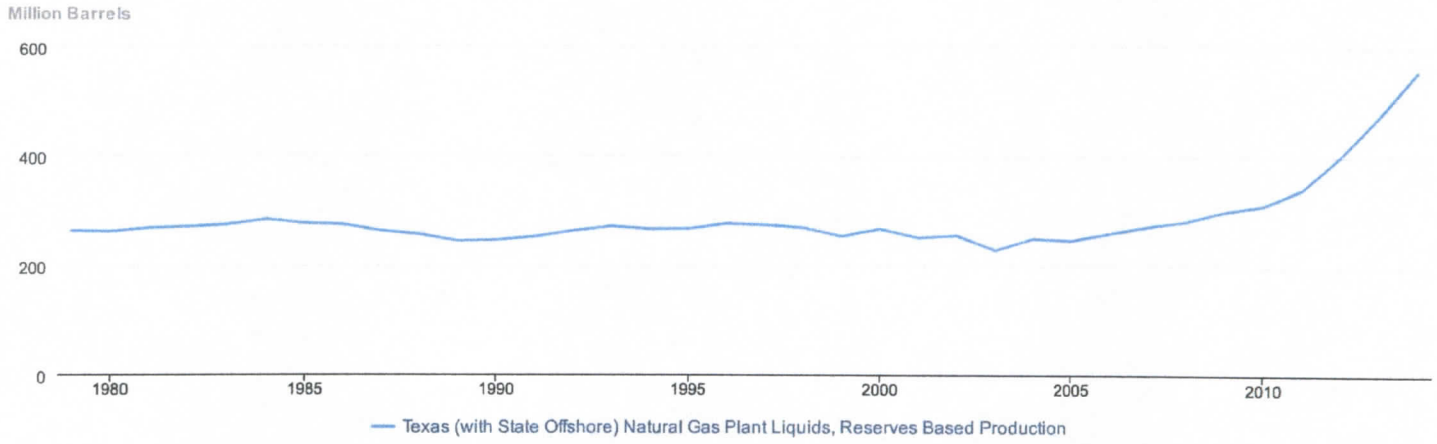



Source: U.S. Energy Information Administration

This series is available through the EIA open data API and can be downloaded to Excel or embedded as an interactive chart or map on your website.

**Texas (with State Offshore) Natural Gas Plant Liquids, Reserves Based Production (Million Barrels)**

| Decade | Year-0 | Year-1 | Year-2 | Year-3 | Year-4 | Year-5 | Year-6 | Year-7 | Year-8 | Year-9 |
|---|---|---|---|---|---|---|---|---|---|---|
| **1970's** | | | | | | | | | | 263 |
| **1980's** | 262 | 269 | 271 | 275 | 284 | 277 | 275 | 263 | 257 | 245 |
| **1990's** | 247 | 253 | 264 | 272 | 267 | 268 | 277 | 275 | 270 | 254 |
| **2000's** | 268 | 252 | 256 | 229 | 250 | 247 | 260 | 272 | 282 | 300 |
| **2010's** | 311 | 340 | 402 | 475 | 558 | | | | | |

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Release Date: 11/19/2015
Next Release Date: 12/31/2016

Referring Pages:
- Natural Gas Plant Liquids Production

Attachment 10

U.S. Energy Information Administration

# PETROLEUM & OTHER LIQUIDS



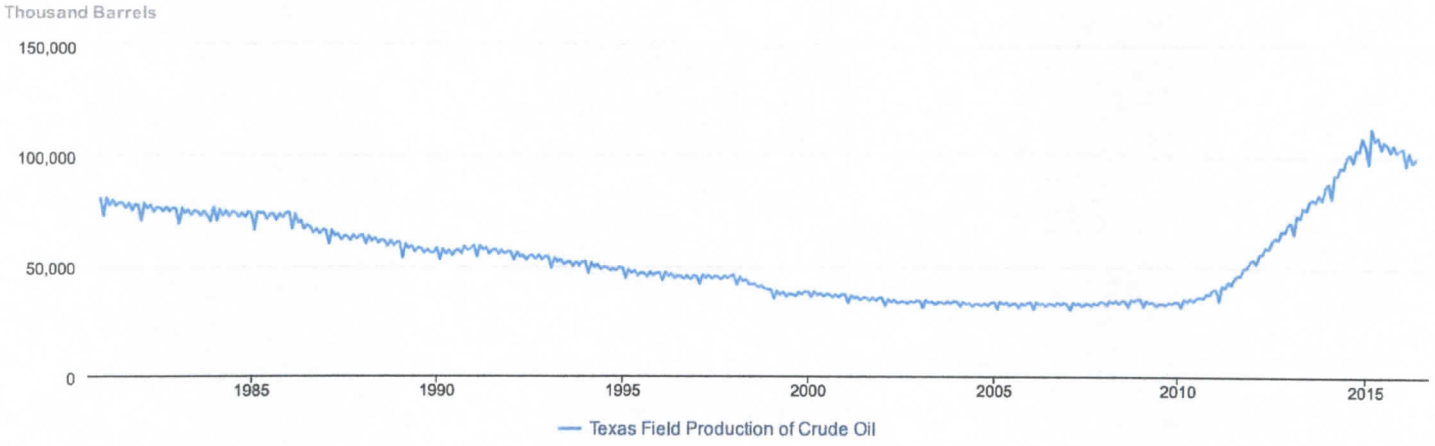
Referring Pages:
- Crude Oil Production

View History: ◉ Monthly ○ Annual

Download Data (XLS File)

## Texas Field Production of Crude Oil

DOWNLOAD




Source: U.S. Energy Information Administration

Chart Tools

no analysis applied

This series is available through the EIA open data API and can be downloaded to Excel or embedded as an interactive chart or map on your website.

### Texas Field Production of Crude Oil (Thousand Barrels)

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1981** | 80,609 | 72,591 | 80,734 | 77,344 | 79,890 | 77,030 | 78,640 | 78,356 | 76,017 | 78,364 | 75,135 | 77,640 |
| **1982** | 77,306 | 70,503 | 78,298 | 75,983 | 77,507 | 74,349 | 76,378 | 76,110 | 74,624 | 76,561 | 74,496 | 76,102 |
| **1983** | 75,776 | 69,034 | 76,046 | 73,833 | 75,263 | 73,020 | 74,932 | 74,393 | 72,726 | 74,850 | 72,827 | 70,211 |
| **1984** | 76,531 | 70,374 | 75,510 | 72,756 | 74,806 | 72,228 | 74,382 | 74,123 | 71,958 | 74,016 | 72,024 | 74,466 |
| **1985** | 73,331 | 66,371 | 74,105 | 73,839 | 74,004 | 70,958 | 73,337 | 73,533 | 70,643 | 73,585 | 71,690 | 73,822 |
| **1986** | 74,135 | 66,752 | 73,344 | 69,397 | 70,407 | 66,802 | 68,621 | 67,529 | 64,891 | 66,638 | 64,604 | 66,475 |
| **1987** | 66,135 | 60,010 | 66,167 | 63,738 | 64,459 | 61,837 | 63,677 | 63,399 | 61,622 | 64,129 | 62,107 | 63,682 |
| **1988** | 63,922 | 59,979 | 63,853 | 61,281 | 62,750 | 60,347 | 61,624 | 61,476 | 59,019 | 61,450 | 59,159 | 60,635 |
| **1989** | 60,740 | 53,515 | 59,812 | 57,725 | 59,073 | 56,383 | 58,015 | 57,916 | 55,717 | 57,467 | 55,925 | 55,881 |
| **1990** | 58,072 | 52,687 | 57,594 | 55,382 | 57,044 | 54,665 | 56,603 | 57,292 | 55,515 | 58,804 | 56,998 | 57,822 |
| **1991** | 59,433 | 54,071 | 59,299 | 57,138 | 58,502 | 55,333 | 57,078 | 57,332 | 55,302 | 57,160 | 55,424 | 56,544 |
| **1992** | 56,323 | 52,552 | 56,220 | 54,054 | 54,953 | 52,661 | 54,505 | 54,719 | 52,929 | 54,834 | 52,601 | 54,274 |
| **1993** | 54,148 | 48,839 | 53,801 | 51,690 | 52,838 | 50,734 | 51,722 | 51,853 | 50,005 | 51,726 | 50,183 | 51,551 |
| **1994** | 51,754 | 46,561 | 51,465 | 49,384 | 50,644 | 48,323 | 49,488 | 49,347 | 47,681 | 48,888 | 47,771 | 49,430 |
| **1995** | 49,056 | 44,190 | 48,410 | 46,696 | 47,706 | 45,594 | 46,681 | 46,620 | 45,107 | 47,110 | 45,725 | 46,751 |
| **1996** | 46,721 | 43,547 | 47,159 | 45,382 | 46,406 | 44,396 | 45,439 | 45,202 | 44,037 | 45,663 | 43,803 | 45,587 |
| **1997** | 45,150 | 41,756 | 45,840 | 44,467 | 45,629 | 44,141 | 45,305 | 45,012 | 43,976 | 45,536 | 44,460 | 45,313 |
| **1998** | 45,909 | 41,312 | 45,140 | 43,016 | 43,723 | 41,599 | 41,721 | 41,772 | 40,185 | 41,157 | 39,708 | 39,420 |
| **1999** | 39,197 | 35,443 | 38,576 | 37,050 | 38,147 | 36,136 | 37,374 | 37,109 | 36,442 | 38,109 | 37,180 | 38,470 |
| **2000** | 38,241 | 36,030 | 38,258 | 36,836 | 37,606 | 36,234 | 37,121 | 37,177 | 35,866 | 36,999 | 35,848 | 37,181 |
| **2001** | 37,020 | 33,270 | 36,603 | 35,464 | 36,204 | 34,606 | 35,747 | 35,622 | 34,127 | 35,770 | 34,253 | 35,611 |
| **2002** | 35,477 | 31,959 | 34,903 | 33,653 | 34,596 | 32,975 | 33,876 | 33,968 | 32,904 | 33,980 | 33,233 | 34,252 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2003** | 34,336 | 31,046 | 34,578 | 33,273 | 34,030 | 32,560 | 33,571 | 33,529 | 32,843 | 34,071 | 32,850 | 33,977 |
| **2004** | 33,797 | 31,700 | 33,758 | 32,461 | 33,223 | 31,709 | 32,762 | 32,838 | 32,023 | 33,090 | 32,073 | 33,281 |
| **2005** | 33,740 | 30,718 | 34,033 | 32,706 | 33,439 | 32,094 | 32,887 | 33,012 | 31,152 | 33,176 | 32,387 | 33,257 |
| **2006** | 33,639 | 30,439 | 33,691 | 32,383 | 33,158 | 31,960 | 32,932 | 32,806 | 32,121 | 33,438 | 32,506 | 33,408 |
| **2007** | 32,790 | 30,191 | 33,501 | 32,481 | 33,244 | 31,743 | 32,825 | 32,977 | 32,075 | 33,229 | 32,515 | 33,701 |
| **2008** | 33,914 | 32,020 | 34,549 | 33,397 | 34,404 | 32,920 | 34,429 | 34,421 | 31,673 | 34,889 | 34,243 | 35,149 |
| **2009** | 35,121 | 31,590 | 34,665 | 33,306 | 33,765 | 32,131 | 32,952 | 33,069 | 32,432 | 33,499 | 33,022 | 33,792 |
| **2010** | 34,060 | 31,391 | 35,244 | 34,109 | 35,526 | 34,158 | 35,726 | 36,161 | 35,729 | 37,674 | 37,276 | 39,614 |
| **2011** | 39,704 | 34,352 | 41,406 | 40,434 | 43,137 | 41,970 | 44,479 | 46,073 | 46,012 | 49,368 | 49,644 | 52,264 |
| **2012** | 53,371 | 51,307 | 55,663 | 55,867 | 59,065 | 58,221 | 61,699 | 63,330 | 62,375 | 66,328 | 66,061 | 68,842 |
| **2013** | 70,108 | 65,043 | 73,499 | 72,407 | 76,996 | 75,625 | 79,802 | 80,911 | 79,667 | 82,878 | 80,489 | 86,014 |
| **2014** | 87,981 | 81,248 | 91,663 | 91,510 | 95,231 | 94,627 | 99,717 | 101,130 | 97,729 | 103,297 | 102,687 | 108,864 |
| **2015** | 104,570 | 96,929 | 112,977 | 107,664 | 109,253 | 103,789 | 107,002 | 105,800 | 102,448 | 105,533 | 102,273 | 103,773 |
| **2016** | 104,189 | 96,134 | 102,151 | 97,492 | 99,168 | | | | | | | |

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Release Date: 7/29/2016
Next Release Date: 8/31/2016

Referring Pages:

- Crude Oil Production